Tzu Chi Medical Journal 25 (2013) 164

Contents lists available at ScienceDirect

Tzu Chi Medical Journal

journal homepage: www.tzuchimedjnl.com

Editorial Comment on: A new method for ultrasound-guided superior laryngeal nerve block

As standard direct laryngoscopy is considered difficult or unsafe for patients with difficult airways, awake fiberoptic intubation of the trachea is well established as the gold standard management [1]. Its success depends on the operator's experience and adequate anesthesia of the oropharynx, larynx, and trachea.

Anesthesia of the upper airway for awake intubation can be broadly divided into two types: (1) topical with a local anesthetic; and (2) specific nerve block of the nasopharynx, oropharynx, or base of the tongue. There are advantages to each approach.

Topical local anesthesia such as "spray-as-you-go" or the "neubulized technique" may cause less trauma to oral airway tissues than multiple nerve block injections. Also, accidental intravascular injection and a subsequent toxic reaction can be avoided.

However, experienced operators can use small doses of a local anesthetic in nerve block techniques, which may reduce the risk of toxic reactions. Sphenopalatine ganglion and ethmoid nerve blocks are used particularly for anesthesia of the nasal mucosa and nasopharynx. Glossopharyngeal nerve and superior laryngeal nerve blocks are used for anesthesia of the mouth, oropharynx, and base of the tongue. Recurrent laryngeal nerve and transtracheal blocks are used for the hypopharynx, larynx, and trachea. No single nerve block can produce complete anesthesia of the whole airway.

Systemic toxicity, methemoglobinemia, hematoma, gastric aspiration, vascular injury, structural injury, and intravascular injection can occur in nerve blocks, especially when multiple nerve blocks are applied simultaneously. Also, transtracheal spread of a local anesthetic usually rapidly induces coughing and should be avoided in patients with an unstable neck.

Therefore, because of its convenience and few complications, the spray-as-you-go technique has become the most common anesthesia for awake fiberoptic intubation [2,3]. In addition, because the internal branch of superior laryngeal nerve (ibSLN) involves sensation in the epiglottis, base of tongue, supraglottic mucosa, thyroepiglottic joint, and cricothyroid joint, ibSLN block is frequently performed by experienced operators in patients undergoing awake fiberoptic intubation. However, because ibSLN block cannot produce complete anesthesia of the whole airway, a combination of conscious sedation and application of local anesthetics into the nostrils is often required to anesthetize the patient adequately. Bilateral superior laryngeal nerve block combined with topical anesthesia has been found to produce better hemodynamic stability and patient comfort than the spray-as-you-go technique [4].

Recently, ultrasound has been widely used in various nerve blocks. Its main benefit is precise location of nerves, thus reducing the amount of local anesthetic required, performance time, and incidence of complications, and improving the success rate [5].

In this issue of *Tzu Chi Medical Journal*, Lan et al [6] demonstrates a new ultrasonic technique for ibSLN block in cadavers. This longitudinal orientation method can identify all landmarks for a superior laryngeal nerve block in one ultrasonic view and is easy in inexperienced hands. Although the superior laryngeal nerve might not be identified, the success rate for this nerve block is up to 91.7%. Therefore, it may be an alternative method of anesthesia for awake fiberoptic intubation.

This technique is of great interest to medical personnel in providing anesthetic care to patients with difficult airways. However, studies are needed to prove its reliability, and especially to compare it with the spray-as-you-go technique in patients with difficult airways. The intubation time, success rate, patient comfort and satisfaction, complications, and possible difficulties should be compared.

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http://dx.doi.org/10.1016/j.tcmj.2013.07.001